

## Claims

1. An electrode structure, which comprises a substrate provided with an electrode formed thereon, wherein the substrate comprises a layer of a fluorine-containing polyimide and a layer of a fluorine-free resin is  
5 interposed between the polyimide layer and the electrode.
2. The electrode structure as set forth in claim 1, wherein the fluorine-free resin is fluorine-free polyimide.
3. The electrode structure as set forth in claim 1 or 2, wherein the substrate is a silicon wafer on which a fluorine-containing polyimide resin  
10 layer and a fluorine-free resin layer are laminated in this order.
4. The electrode structure as set forth in any one of claims 1 to 3, wherein the substrate is a silicon wafer on which a silicon oxide film, a fluorine-containing polyimide resin layer and a fluorine-free resin layer are laminated in this order.
- 15 5. The electrode structure as set forth in any one of claims 1 to 4, wherein the substrate is an optical waveguide substrate.
6. The electrode structure as set forth in any one of claims 1 to 5, wherein the electrode comprises a gold layer as the outermost or surface layer and an aluminum layer interposed between the substrate and gold layer.
- 20 7. The electrode structure as set forth in claim 6, wherein the electrode comprises a gold layer as the outermost or surface layer, an aluminum layer interposed between the substrate and the gold layer and further a layer of a high melting point material arranged between the gold and aluminum layers.
- 25 8. The electrode structure as set forth in claim 7, wherein the high melting point material comprises a member selected from the group consisting of chromium, titanium, molybdenum, tungsten and mixtures each containing at least two of these materials.

9. The electrode structure as set forth in claim 7, wherein the high melting point material is a ceramic.

10. The electrode structure as set forth in claim 7, wherein the high melting point material comprises a member selected from the group  
5 consisting of silicon monoxide, silicon dioxide, titanium monoxide, titanium dioxide, titanium sesquioxide, silicon carbide, silicon nitride, chromium oxide, tantalum pentaoxide and mixtures each containing at least two of these materials.

11. The electrode structure as set forth in any one of claims 6 to 10,  
10 wherein the overall thickness of the electrode including the gold and aluminum layers is not more than  $4\ \mu\text{m}$ .